$Y = A \sin B(x-c)+D$

$Y = A \cos B(x-c)+D$

C- Phase Shift (Horizontal Shift)

D- Vertical Shift

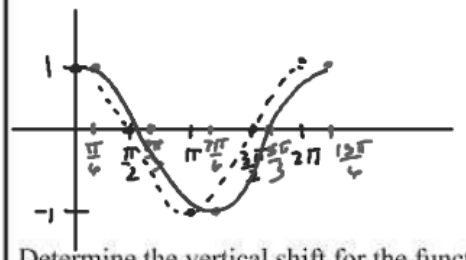
Determine the phase shift for the function and the sketch the graph.

A) $y = \cos\left(x - \frac{\pi}{6}\right)$

Amp = 1

Per = 2π

P.S. $\frac{\pi}{6}$ Right

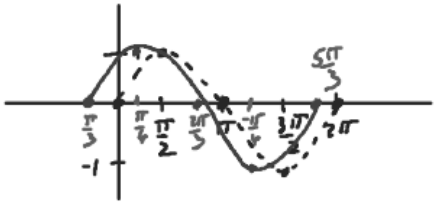


B) $y = \sin\left(x + \frac{\pi}{3}\right)$

Amp = 1

Per 2π

P.S. $\frac{\pi}{3}$ Left



Determine the vertical shift for the function and the sketch the graph.

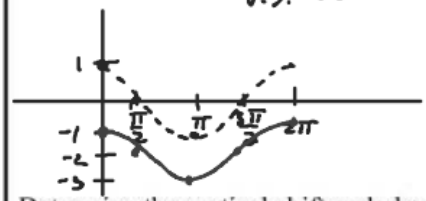
A) $y = \cos x - 2$

Amp = 1

Per 2π

P.S. None

V.S. Down 2



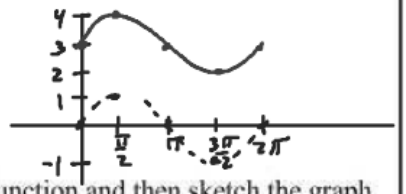
B) $y = \sin x + 3$

Amp = 1

Per 2π

P.S. None

V.S. Up 3

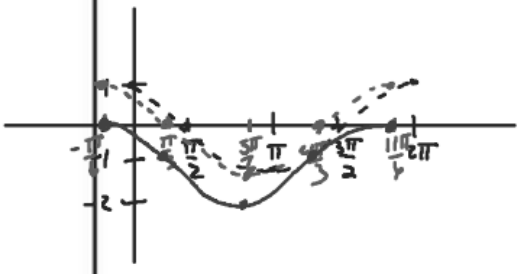


Determine the vertical shift and phase shift of the function and then sketch the graph

A) $y = \cos\left(x + \frac{\pi}{6}\right) - 1$

P.S. $\frac{\pi}{6}$ Left

V.S. Down 1



B) $y = \sin\left(x - \frac{\pi}{3}\right) + 2$

P.S. $\frac{\pi}{3}$ Right

V.S. Up 2